

REPORT NUMBER 401-STF-20-02

SAFETY COMPLIANCE TESTING FOR FMVSS NO. 401 INTERIOR TRUNK RELEASE

BAYERISCHE MOTOREN WERKE AG
2020 BMW 330i
FOUR-DOOR PASSENGER CAR
NHTSA NO. C20204100

U.S. DOT SAN ANGELO TEST FACILITY
131 COMANCHE TRAIL, BUILDING 3527
GOODFELLOW AFB, TEXAS 76908



OCTOBER 3, 2019

FINAL REPORT

PREPARED FOR

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
NEF-220
OFFICE OF VEHICLE SAFETY COMPLIANCE
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SECTION 1

INTRODUCTION

1.1 PURPOSE OF COMPLIANCE TEST

A 2020 BMW 330i four-door passenger car was tested to determine if the vehicle was in compliance with the requirements of FMVSS NO. 401. All tests were conducted in accordance with NHTSA/Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure TP-401-01 dated August 8, 2007.

1.2 TEST VEHICLE

The test vehicle was a 2020 BMW 330i four-door passenger car. Nomenclatures applicable to the test vehicle are:

A. Vehicle Identification Number: WBA5R1C0XLFH53825

B. NHTSA Number: C20204100

C. Manufacturer: Bayerische Motoren Werke AG

D. Manufacture Date: 07/2019

1.3 TEST DATE

The test vehicle was tested October 3, 2019

SECTION 2

TEST PROCEDURE AND DISCUSSION OF RESULTS

2.1 TEST PROCEDURE

Prior to test, the test vehicle was inspected for completeness and systems operability, including battery capability and trunk closure function. The vehicle was then photographically documented as required by the NHTSA/OVSC Test Procedure. The owner's manual was reviewed, and pertinent trunk release information was noted.

The rear trunk manual release system vehicle tests were conducted with an occupant enclosed in the trunk compartment with the lid shut. An assistant was present and prepared to release the occupant if necessary. The compartment was evaluated with all removable equipment furnished by the manufacturer stowed in accordance with vehicle label instructions.

The procedure used consists of the following steps:

1. Determine the means by which a trapped person within the trunk would escape from the compartment, e.g. pull of a T-handled release mechanism, rotation of fixed lever release mechanism, push of a button, etc.
2. For informational purposes, install a linear force transducer to the release mechanism determined above in order to record the force required to be applied by the trapped occupant to escape.
3. Verify that the release mechanism is visible in the darkened trunk (S4.2(a)), and determine method used, e.g. phosphorescence or auxiliary lighting. Some time may be required to allow for the eyes to adjust to the darkened environment within the trunk compartment. Photograph if possible the lighted release mechanism.
4. With the vehicle stationary and no key in the ignition (representing unoccupied vehicle), actuate the release mechanism and verify that the trunk lid releases from all latching positions. Record force required during 3 attempts to release trunk latching mechanism.
5. Repeat step 4 above, except with the engine idling (time with trunk lid latched not to exceed 30 seconds).

2.2 DISCUSSION OF RESULTS

The force required to release the trunk lid did not exceed 16.6 Newtons on any attempt. The data indicate compliance of the test vehicle's manual trunk release system for the No Key in Ignition and the Idling Vehicle trunk release tests.

SECTION 3
TEST DATA

DATA SHEET 1
FMVSS NO. 401 – TEST DATA SUMMARY

MODEL YEAR/MAKE/MODEL/BODY STYLE: 2020 BMW 330i four-door passenger car

VEHICLE NHTSA NUMBER: C20204100 VIN: WBA5R1C0XLFH53825

GVWR: 4,586 lbs. 2,080 kg DATE OF MANUFACTURE: 07/2019

TEST LAB: U. S. DOT San Angelo Test Facility TEST DATE: October 3, 2019

	PASS/FAIL	COMMENTS
Automatic or Manual release mechanism inside the trunk compartment. S4.1	PASS	Manual
If manual release, lighting feature is included. S4.2(a)	PASS	Phosphorescence
Except as provided by S4.3(b), actuation of release mechanism required by S4.1 completely releases trunk lid from all latching positions of the trunk lid latch. S4.3(a)	PASS	None

REMARKS: None

RECORDED BY: Anthony L. Walden and Tommy Oliver DATE: October 3, 2019

APPROVED BY: Kerrin Bressant

**DATA SHEET 2
TEST PREPARATION INFORMATION**

MODEL YEAR/MAKE/MODEL/BODY STYLE: 2020 BMW 330i four-door passenger car

VEHICLE NHTSA NUMBER: C20204100 TEST DATE: October 3, 2019

TRUNK LOCATION: Rear

NUMBER OF TRUNK LATCHING POSITIONS: One

INTERIOR TRUNK RELEASE: Manual

EQUIPPED WITH POWER CLOSURE ASSISTING DEVICE: No

OWNER'S MANUAL DESCRIPTION OF TRUNK RELEASE: Yes Page(s): 92

REMOVABLE EQUIPMENT DELIVERED IN TRUNK:

SPARE TIRE: N/A Size: N/A

TIRE JACK: N/A

LUG WRENCH: N/A

OTHER: Phillips screw driver & tow hook

REMARKS: No spare available, vehicle is equipped with run flat tires

RECORDED BY: Anthony L. Walden and Tommy Oliver DATE: October 3, 2019

APPROVED BY: Kerrin Bressant

DATA SHEET 3 (Sheet 1 of 2)
MANUAL TRUNK RELEASE OPERATION

MODEL YEAR/MAKE/MODEL/BODY STYLE: 2020 BMW 330i four-door passenger car

VEHICLE NHTSA NUMBER: C20204100 TEST DATE: October 3, 2019

Method used to actuate interior trunk release: Grab handle

Can test personnel enter trunk and be closed within? Yes

Size of occupant: 5' 6", medium frame

Is there access to the trunk compartment by folding down rear seat or partition? Yes

Does release mechanism require electric power? No

Can release mechanism be easily seen inside the closed trunk? Yes

Method used by vehicle manufacturer to ensure that release mechanism is visible in the closed trunk compartment: Phosphorescence

Describe laboratory test method used to determine visibility of release mechanism:

Trunk Entry X Darkened Room _____ Other _____

Laboratory test method used to determine visibility of release mechanism: Force gauge was used to measure the pull required to unlatch the trunk from inside

DATA SHEET 3 (Sheet 2 of 2)
MANUAL TRUNK RELEASE OPERATION

Vehicle Stationary (0 km/h)	Force in Newtons Required to Release Trunk Lid (no requirement)	Trunk Released from All Latching Positions	Pass/Fail
NO KEY IN IGNITION			
Attempt 1	12.2	Yes	Pass
Attempt 2	11.0	Yes	Pass
Attempt 3	11.0	Yes	Pass
Average	11.4		
ENGINE IDLING			
Attempt 1	11.2	Yes	Pass
Attempt 2	10.6	Yes	Pass
Attempt 3	11.6	Yes	Pass
Average	11.1		

TEST RESULTS

PASS

REMARKS: None

RECORDED BY: Anthony L. Walden and Tommy H. Oliver

DATE: October 3, 2019

APPROVED BY: Kerrin Bressant

SECTION 4
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

EQUIPMENT	DESCRIPTION	MODEL/ SERIAL NO	CAL. DATE	NEXT CAL. DATE
DIGITAL FORCE GAUGE	WAGNER INSTRUMENTS FORCE TEN	SERIAL #10363	11/26/2018	11/26/2019

SECTION 5
PHOTOGRAPHS



2020 BMW 330i
NHTSA NO. C20204100
FMVSS NO. 401

FIGURE 5.1
FRONT OF VEHICLE



2020 BMW 330i
NHTSA NO. C20204100
FMVSS NO. 401

FIGURE 5.2
LEFT SIDE VIEW OF VEHICLE



2020 BMW 330i
NHTSA NO. C20204100
FMVSS NO. 401

FIGURE 5.3
RIGHT SIDE VIEW OF VEHICLE



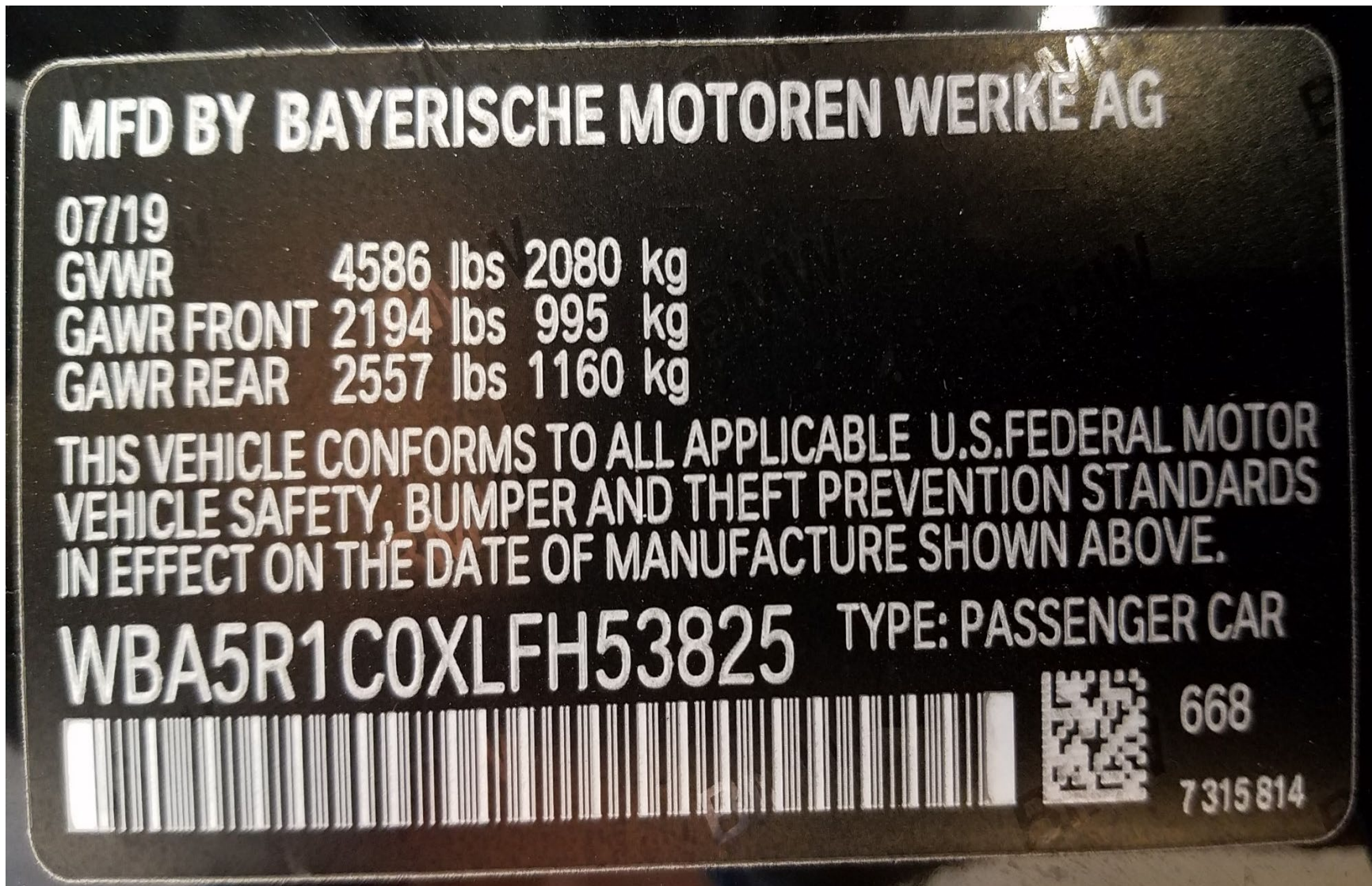
2020 BMW 330i
NHTSA NO. C20204100
FMVSS NO. 401

FIGURE 5.4
LEFT REAR THREE-QUARTER VIEW OF VEHICLE



2020 BMW 330i
NHTSA NO. C20204100
FMVSS NO. 401

FIGURE 5.5
RIGHT REAR THREE-QUARTER VIEW OF VEHICLE



2020 BMW 330i
NHTSA NO. C20204100
FMVSS NO. 401

FIGURE 5.6
VEHICLE CERTIFICATION LABEL



2020 BMW 330i
NHTSA NO. C20204100
FMVSS NO. 401

FIGURE 5.7
VEHICLE TRUNK COMPARTMENT INTERIOR
SHOWING ORIGINAL EQUIPMENT INSTALLED



2020 BMW 330i
NHTSA NO. C20204100
FMVSS NO. 401

FIGURE 5.8
VEHICLE TRUNK COMPARTMENT
MANUAL RELEASE MECHANISM



2020 BMW 330i
NHTSA NO. C20204100
FMVSS NO. 401

FIGURE 5.9
VEHICLE TRUNK COMPARTMENT
MANUAL RELEASE MECHANISM ILLUMINATION



2020 BMW 330i
NHTSA NO. C20204100
FMVSS NO. 401

FIGURE 5.10
RELEASE MECHANISM WITH
TEST EQUIPMENT ENGAGED



2020 BMW 330i
NHTSA NO. C20204100
FMVSS NO. 401

FIGURE 5.11
TEST OBSERVER IN TRUNK COMPARTMENT



2020 BMW 330i
NHTSA NO. C20204100
FMVSS NO. 401

FIGURE 5.12
TRUNK LID EXTERIOR